



Opodiphthera eucalypti
male above and
O. helena male below
on *Eucalyptus teriticornus*
(Forest Red Gum)

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PLANNING AND ORGANIZING COMMITTEE 2013

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PLANNING AND ORGANIZATION MEETINGS

A quarterly meeting is scheduled in order to plan club activities and the magazine.
See BOIC Programme.

CONTACT ADDRESS AND MEMBERSHIP DETAILS

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Membership fees are \$30 for individuals, schools and organizations.

AIMS OF ORGANIZATION

- To establish a network of people growing butterfly host plants;
- To hold information meetings about invertebrates;
- To organize excursions around the theme of invertebrates e.g. butterflies, native bees, ants, dragonflies, beetles, freshwater habitats, and others;
- To promote the conservation of the invertebrate habitat;
- To promote the keeping of invertebrates as alternative pets;
- To promote research into invertebrates;
- To encourage the construction of invertebrate friendly habitats in urban areas.

MAGAZINE DEADLINES

If you want to submit an item for publication the following deadlines apply:

March issue – February 1st

June issue – May 1st

September issue – August 1st

December issue – November 1st

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COVER PAINTING

Opodiphthera eucalypti male and *O. helena* male – painting by Lois Hughes from photos by Densey Clyne. Prints available.



FROM THE PRESIDENT

When involved with any activity relating to the Butterfly and Other Invertebrates Club, I try to keep in mind the members of our club. We are a widespread group of individuals from diverse backgrounds, each with our own special life history, skills, knowledge and experience. We share a common interest, which is an absorption in the world of invertebrates. While some members are able to interact personally on a regular basis, our common link is through this magazine “Metamorphosis Australia.” Your articles, letters, photos and enquiries enable us to strengthen that link. Once again I thank our contributors who have provided a feast of information and colour.

I am somewhat in awe of Ray Archer’s efforts whereby, within one year, he has interested and enthused quite a number of residents with the goal of making Bribie Island an island of butterflies. His practical steps to help “Bring back the butterflies” by involving members of the community in types of habitat restoration are an impressive demonstration of how to promote one of the major goals of this club.

Should you send in observations of an insect at any time, it would be appreciated if you could also send detailed GPS coordinates of the location where this insect was found. This will provide valuable information to those who record such material in databases.

After the Club’s Annual General Meeting a few years ago, we had a swap/barter/sell/donate of useful items brought along by members. By “popular request” we will repeat the exercise after our AGM at IndigiScapes on April 12th next. Some interesting enclosures, books and odds and sods have already been promised. The AGM is usually quite brief so a get together afterwards will provide an added opportunity to meet and chat with others who are within range.

Best wishes

Ross

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The Emperor's New Clothes – Densey Clyne

Scratch - scratch - scratch - the sound half wakes me and in a drowsy state I try to figure out the cause. A mouse behind the wainscot? But my cat Thomas cleared my Sydney house of mice long ago. The sound persists and it's time I got up anyway. First stop the kitchen to put the kettle on and there is Thomas on the kitchen bench gazing intently at some gum leaves in a bottle of water. That's where the scratching sound is coming from. Time for action! Time to set up my camera for some macro work on an exciting royal event, the emergence of an Emperor!

That diary note harks back to an era when there were no easy-to-use digital cameras with instant assessment of success or failure. Small subjects don't often wait around to give you a second chance so it was a matter of 'over-shoot and hope for the best!' It was the time of my first encounters with two species of Emperor moths common around the Sydney area. Though I'd not yet seen the moths themselves I'd brought home their caterpillars for observation and photography, and with luck an emergence from the cocoon. In my bush garden the moths' gum-leaf food was readily available and the kitchen bench as good a place as any to set up these striking-looking caterpillars for daily observation.

While the adult moths of *Opodiphthera eucalypti* and *O. helena* are very similar their caterpillars are very different. The leaf-green *O. helena* is recognisable by a covering of short white bristles and a pink stripe along the sides. *O. eucalypti* is more of a blueish-green with brilliantly-coloured, spiky tubercles. In its normal upside-down feeding position with daylight coming from above *O. eucalypti*'s pale dorsal surface helps to disguise the cylindrical shape that would be a give-away to a hungry bird.

I wonder whether the decorative tubercles on *O. eucalypti*'s caterpillars are there for a purpose. *O. helena* also has some, though less spectacular. They look sharp but don't appear to sting, in fact they seem to have no function at all. As with so much in nature, we can only admire them and accept their mystery. No mystery about those amazing abdominal feet (or prolegs) that hold heavy caterpillars like the Emperors safely upside down. It's a 'belts and braces' strategy, with suction pads for smooth surfaces and a set of tiny hooks for rough surfaces. Who said velcro was a human invention?

The caterpillars of these two Emperors pupate in similar cocoons fixed to a branch or stem of the food-tree. It is interesting to watch the caterpillar bend into a U shape while weaving to form the cocoon tightly around itself. In a process perhaps related to tanning, the finished cocoon is flooded with a fluid that changes its structure and dyes it dark brown. It dries rock-hard, protecting the developing pupa sometimes for many months.





Opodiphthera eucalypti early instar larva



O. eucalypti later instar larva



O. eucalypti mature larva



O. eucalypti larval prolegs



O. eucalypti newly emerged males





Opodiphthera helena mature larva



O. helena larval prolegs



Above left - *O. helena* rear claspers
 Above - *O. helena* male emerging from cocoon
 Left - *O. helena* newly emerged male



Back now to those early days of discovery. I had several cocoons set up in my kitchen to await emergence. But

how could the moths escape those imprisoning walls and how would I know it was about to happen? Off to my entomological bookshelf I went (there was no Google then) to learn that prior to emergence the moths use a pair of sharp thorn-like processes on their 'shoulders' as cutting tools. But first one end of the cocoon is suffused with a fluid, this time to soften it. And then begins what can be quite a lengthy process of hole cutting.



So now my patience is tested. The scratching sound goes on and on all day. There have been some breaks in my attention and it is by sheer good luck that I happen to glimpse tiny fragments of fluff floating off the end of the cocoon, but my camera is set up ready. A small hole appears and one of the shoulder scrapers can be seen at work - a brown spike. Suddenly in a flurry of white fluff a pair of furry feet appear followed rapidly by a head with an enormous pair of antennae. It is a male! Very quickly now the swollen body of the moth pops out. A few hurried steps up the stem and he settles down to unfold crumpled wings and void the fluids accumulated during pupation. A final shot when the moth has recovered from its emergence, with wings fully expanded and functional. Then late that evening I send it winging on its way.

Well, the processed film came back with the usual mixed results, but enough success to pave the way later to an interesting experiment. In order to film the moth's emergence for a television show,

cinematographer Jim Frazier and I cut away part of a cocoon and fixed it against a sheet of glass. The caterpillar had already been weaving for 54 hours, and now on camera and exposed against the glass it continued until a perfect cocoon was completed. With a second cocoon and a different moth announcing its imminent arrival, Jim was able to complete the sequence by filming for television the dramatic arrival of an Emperor, just as I had witnessed it with such excitement many years before in my suburban kitchen.

Photos Densey Clyne



O. helena newly emerged male



ITEMS OF INTEREST

One cicada, two cicadas, three cicadas... twelve! - Lindsay Popple

Every summer in Australia (and indeed in many other parts of the world) the forests, woodlands and grasslands become host to the acoustic rhythms of cicadas. To the human ear, these sounds may be perceived by some as welcome, evocative or pleasant and to others as annoying, deafening or just plain unbearable. For most, however, these natural sounds generate an ambivalent response, with ample opportunity for the brain to exercise its expert filtering abilities. Ultimately, few people come to appreciate the sheer diversity of cicadas around them.

The exceptions include school children, particularly those who grew up in Greater Sydney and got to know the Greengrocer, Redeye, Black Prince, Double Drummer and Cherrynose cicadas in their local area, through capturing them and having discussions over which species were the best or hardest to catch! In fact many people will have different recollections of these species and a different set of common names to refer to them. In reality though, these are all large and conspicuous examples. The real diversity lies in the smaller, more cryptically camouflaged species with their soft calls. These generally outnumber the larger species in bushland areas by a ratio of two or three to one.



Cherrynose (*Macrotristria angularis*) adult male

One such small and inconspicuous species in eastern Australia is *Pauropsalta annulata*. Ewart (1989) was the first to document the song of this species and in this paper he also highlighted some apparent regional variation in the call. I had always found this case of variation intriguing, because the calls are generally regarded to be

species-specific due to their importance in mate attraction and localisation. Why would there be such variation when it is the specific structure of the call which allows the female to recognise and locate the male? Several Australian cicada taxonomists were already suspicious of the variation in this species and were quite open to the possibility that there might actually be multiple species within *P. annulata*. So, in 2002, I embarked on a long term study to investigate the nature of the call variation in this cicada. Initially, only a handful of different song types were known, but through the process of this study several more were revealed. I obtained recordings of each



song type across the extents of each of their geographical distributions. I also gathered many specimens for morphological and genetic analysis.



Pauropsalta annulata s. str. adult male

During the course of this study, I discovered several key attributes about these song types, as follows:

- Each song type occurred at multiple localities and was often widespread across more than one state in Australia, with the call structure remaining consistent across its entire geographical distribution;
- Many localities harboured multiple song types, with each remaining distinct in areas of overlap;
- A few consistent differences in morphological appearance were evident between these song types;
- Different song types often exhibited different plant associations; and
- Many of the song types were not only genetically distinct, but also showed evidence of divergence several million years ago.

Close investigation of these song types ultimately revealed the presence of 12 species within what was previously considered to be a single species. Each particular song type was found to represent a different species, except in one case. In this exceptional example, two song types did not conform to the key attributes described above. These two particular song types were not able to be found together in an area of overlap. Possum Park (near Miles) in Queensland was the only locality where both of these types were found to occur in close proximity to one another. Otherwise, wherever they would be predicted to occur together, a mixed or intermediate song form was encountered, suggesting widespread hybridisation. In this case, the two “parental” song types involved were described as subspecies under the species *Pauropsalta notialis*. One of the subspecies, *Pauropsalta notialis notialis*, has a warm temperate distribution in eucalypt woodland from the south coast of New Wales coastally and subcoastally north to Blackbutt, Eidsvold, Injune and Mt Moffatt in southern



Queensland. The other subspecies, *Pauropsalta notialis incitata*, occurs in inland brigalow and eucalypt woodland from north of Clermont in Queensland south to the Moree district in New South Wales, with isolated populations in the Australian Capital Territory and north of Melbourne in Victoria. The hybrid populations between these subspecies vary in song structure and morphology due to apparent differences in the admixture of the parental forms. Due to the inconsistency of form, the hybrid was not described as a formal taxonomic entity; however, it was emphasised in the paper because of its fairly widespread occurrence west of Brisbane. Hybrid populations between *P. n. notialis* and *P. n. incitata* have been found north of Eidsvold, at Upper Yarraman, Cooyar in the Lockyer Valley and in the Fassifern Valley.



Adult male specimens of *Pauropsalta notialis notialis* (top left), *Pauropsalta notialis incitata* (top right) and examples of hybrids between these two subspecies (bottom)

During the study, several species in the group were revealed to be far more widespread than distribution given for *P. annulata* in Moulds (1990) and Ewart (1989), which was restricted to southern Queensland and eastern New South Wales. For example, *P. corymbiae* was discovered to occur in arid districts from central Western Australia right across to Charleville in western Queensland. Another species, *P. granitica* was also found to be widespread, occurring from the southern part of the Top End of the Northern Territory east to the drier parts of the Atherton Tableland in north-east Queensland. The group provides an excellent example of the hidden diversity that can be uncovered when a putatively variable, single species is



examined in detail. The paper containing descriptions of these species and subspecies (Poppo, 2013) was published in Zootaxa in October.



Pauropsalta corymbiae adult male (left) and its distribution across mainland Australia (right)

Photos Lindsay Poppo

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Life history notes on the White-banded Plane, *Phaedyra shepherdii* (Moore, 1858) Lepidoptera: Nymphalidae - Wesley Jenkinson



This interesting butterfly was previously described as two subspecies *Phaedyra shepherdii shepherdii* (Moore, 1858) being geographically located from central Queensland to north-eastern New South Wales and *P. s. latifasciata* (Butler, 1858) in north-eastern Queensland. Within Australia the two subspecies have since been identified as a cline and reassigned to the endemic (nominate) subspecies *P. s. shepherdii* (Braby, 2000). Because of its flight characteristics the species was also previously known as the Common

Aeroplane and Glider or Sailor in other parts of its range.



It is located chiefly in coastal and sub-coastal regions including the Great Dividing Range along margins situated in tropical and subtropical rainforest, monsoon forest, gallery forest, creeks and gullies wherever its larval food plants occur. It also breeds in suburban gardens in southeast Queensland where host plants are established. The wide variety of known host plants belong to seven different families being Bombacaceae, Boraginaceae, Fabaceae, Malvaceae, Sterculiaceae, Tiliaceae and Ulmaceae (Braby, 2000). Moss (2010) lists a dozen host plant species for this region which probably explains why it is usually a common butterfly, although never appearing in large numbers at any one time.

The adults of this species have a very distinctive flight pattern, quickly flapping their wings several times and then gliding with the wings outstretched. Both sexes are readily attracted to a wide range of small native and introduced flowers. While feeding, the wings are slowly opened and closed. The adults are active from mid morning to late afternoon in sunny conditions. Perching on leaves at the end of prominent branches the males defend small territories rapidly chasing off other butterflies flying past. After a quick chase they often return to the same perch. While perched, the head is angled down and the wings are slowly opened and closed. During extremely hot weather the adults can be observed imbibing moisture from damp ground such as gravel roads, forest tracks and creek crossings. At other times adults have also been observed walking on the forest floor apparently imbibing certain chemicals or feeding on fermenting vegetable matter (John Moss, pers com.). The males of this species are not known to hilltop.

In comparison to specimens from south-eastern Queensland, specimens from north-eastern Queensland have a wider central band on the hindwing and often have a slight greenish tinge which fades on collected specimens. Individuals show slight variation in the extent and shape of the white markings on the upperside. The males have a patch of silver-grey sex scales on the costa on the upperside of the hindwing and a patch near the dorsum on the forewing underside. The white streak near the base of the forewing and the white cell spot on the forewing is also larger in the male.

Wingspans for the pictured adult specimens are: male 55mm and female 57mm.



Images left to right: male, female (Beaudesert, south-east Queensland)





Images left to right: male underside, female underside (Beaudesert, south-east Queensland)



Images left to right: male, female (*Silver Plains 2003, Cape York Peninsula north-east Queensland)

* Permission was approved to access land and collect during April 2003 at Silver Plains, Cape York Peninsula via the Aboriginal people of the Kulla Land trust who I thank.

***Phaedyma shepherdii* (White-banded Plane)**

Ovipositing females flutter slowly around the host plants and settle on a suitable leaf. With wings open or closed eggs are laid singly, usually on the upperside at the tip of the leaf apex. Females select older mature leaves rather than fresh shoots when ovipositing on Burny Bean (*Mucuna gigantea*). The young larvae feed and mature successfully on these.



Freshly laid egg

In March 2010, an egg was sleeved and raised through to an adult on *M. gigantea*. This egg was pale green, off spherical and largely pitted.

The first instar consumed the eggshell after hatching. It rested along a leaf midrib on the upperside of a leaf tip facing the apex. Later small sections of the leaf were cut and attached with silk to hang loosely from the leaf.



Similarly as the larva progressed in size, larger chewings were made towards the midrib leaving one section at a time towards the apex. This then became the next piece of leaf to be attached to the midrib to dry (as pictured at start of article). As the sections of leaf dried they turned brown (matching the larval colour) swaying in the breeze creating a high degree of camouflage against predators.

Another mechanism deterring predators appears to be the ventrally placed eversible organ (adenosma) which releases a repulsive odour, in much the same way as the forked osmeterium of swallowtail larvae (Miller, 2004, 2008).

For additional protection the last three instars have four clearly visible white lateral spots situated on abdominal segments 8 and 9. These spots no doubt serve to deter any female tachinid fly laying eggs on an apparently already infected host (one species of tachinid fly has quite similar sized and shaped eggs), tricking them into assuming that the larva already has several eggs attached. This is an unusual and effective form of mimicry, although even with this trick pattern some larvae still fall victim to the parasite.

The larva (which curiously, at maturity, has a resemblance to a Scotch Terrier dog!) was observed feeding during daylight hours, particularly before dusk. This larva attained a length of 27mm and completed 5 instars.



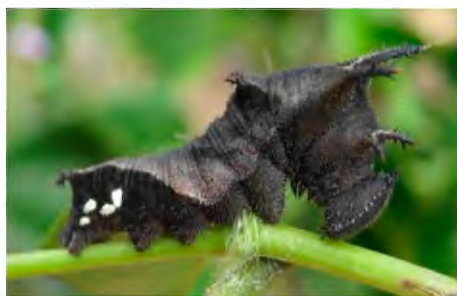
1st instar larva



2nd instar larva
3rd instar larva→



4th instar larva



5th instar larva





Left to right – pupa dorsal and lateral view

The pupa, measuring 19mm in length, was located below a leaf of the host plant near where the larva had been previously feeding. It was hanging head downward attached with silk by the cremaster.

Egg duration was 8 days, larval duration was 32 days while pupal duration was 19 days.

Within the new boundary of the Scenic Rim Regional Shire south of Brisbane, I have records of adults from all months except July. In this location the adults are more numerous from late summer to late autumn and there are probably two generations per year.

Acknowledgement:

I wish to thank John Moss for useful additions and corrections to the manuscript.

Photos Wesley Jenkinson

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Notes on the moth genus *Bracca* Hubner [1820] Lepidoptera: Geometridae: Ennominae - Graham J. McDonald

Introduction:

During a Cape York Peninsula trip in July, 2011, we visited Iron Range National Park. On the 16th July, I photographed a spectacular black, white and orange moth but could not classify it until just recently when I happened to recognise it on the iBOL website. This highlights the problem that an amateur lepidopterist faces in trying to name one moth from the vast fauna of between 20,000 and 30,000 Australian moths, many of which are still undescribed. The moth is *Bracca ribbei* and it seems to be restricted to rainforest habitats in the Iron Range area on eastern Cape York Peninsula.



Bracca moths:

This is a small genus of four species in Australia. *Bracca* species are medium to large moths with wingspans of between 50mm. and 60mm. They belong to the family Geometridae (Looper Moths) and to the subfamily Ennominae. This subfamily is the largest subfamily of Australian moths with about 480 described species in 114 Genera. The Genus *Bracca* was previously known as *Tigridoptera* (Common,1990). The species *Tigridoptera leucosticta* has since been moved to *Craspedosis leucosticta* (photo, see p.15 *Mothology: Discover the Magic*, 2008).

The subfamily Ennominae are characterized by loss of vein M2 as a tubular vein in the hindwing. (Most lepidoptera have veins M1, M2 and M3.) The majority of Ennominae are usually boldly patterned on both hind and forewings at rest, with all four wings flat and visible on the substrate. There is a large southern group in Australia which are without patterned hindwings and these are hidden by the roof-wise resting posture of the forewings. They are typically grey. Larvae of Ennominae are ornamental with various protuberances and projections which aid their resemblance to dead twigs of the food plant.

Species:

(a) *Bracca ribbei* (fig.1) is found on Cape York Peninsula at Iron Range. It lives in tropical rainforest and flies at night. It is differently patterned to the other three species.



Fig. 1 *Bracca ribbei*

(b) (fig. 2) (formerly *Tigridoptera matutinata*) is located in rainforest habitat in south-eastern Queensland and north-eastern New South Wales

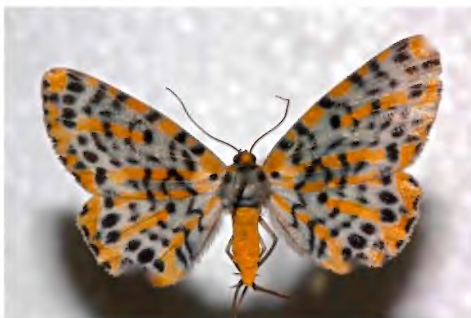


Fig. 2 *Bracca matutinata*



Fig. 3 Larva of *Bracca matutinata* on *Wilkiea huegeliana*



with an outlying population at Eungella in central Queensland. It has been called the 'Persian Carpet Moth' due in part to its striking white-grey background marked with black spots and orange bars. The host plant is a rainforest shrub – *Wilkiea huegeliana* (Veiny Wilkiea) (fig. 3).

(c) *Bracca rotundata* (syn. *Cosmethis buruensis*, L. B. Prout, 1929) inhabits tropical rainforest on Cape York Peninsula and south to Eungella. It is similar in appearance to *B. matutinata*. (see p.15 *Mothology: Discover the Magic* for a photo of the moth).

(d) *Bracca rosenbergi* is only found in rainforest at the tip of Cape York and some Torres Strait Islands. It is similar to the former species.

Photos Graham MacDonald

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A Scatological Spider – *Densey Clyne*



Phrynarachne decipiens

On a trip to Iron Range in the Northern Territory I was taking a last walk along a rainforest track before heading home to Sydney when my eye was caught by a white patch on a leaf. It looked like a messy bird-dropping until I focussed on a pattern of bilateral symmetry at the centre, the give-away pattern that for small prey animals may sometimes foil the best attempts at camouflage. A lot of insects use camouflage to avoid predation but in this case it was being used by a predator. Yes, a spider, a handsome white one with the long front legs, eye pattern and general conformation that marked it as a crab spider of the family Thomisidae. The dark front legs and a few small dark patches on the body enhanced the resemblance to the spider's messy surroundings.

Barely visible, the spider was surrounded by a mesh of silk threads that were matted with its



own white droppings. Discarded fragments of insect victims confirmed this to be the spider's ambush spot, and what surprised me when I bent down to put my nose close to the spider (I don't always recommend this) was the distinct smell of rotting flesh. I found a second spider and decided to take both back to Sydney to learn something of their ways.

At home the spiders settled on leaves in my glasshouse, surrounding themselves with the same kind of 'bird dropping' camouflage. The rancid smell was still evident and I guessed it to be an attractant for specific insect prey. This was more or less confirmed when between them the two spiders caught several carrion flies and small cockroaches.

Meanwhile I found that the spider had already been discovered and named *Phrynarachne* ('toad spider'? surely not!) *decipiens*, with a distribution in South East Asian countries as well as tropical Australia. I was intrigued to find that its original name was *Ornithoscatoides decipiens*, which translates aptly if loosely as "deceptively like bird shit". In Australia it has the unedifying common name of "turd spider". And I found that its use of smell to attract victims was already well known, which is a pity as I might otherwise have achieved fame as the first female spider sniffer.

Photo Densey Clyne

New and overlooked distribution records for the Common Grass Blue, *Zizina otis labradus* (Godart) (Lepidoptera: Lycaenidae), in eastern Australia - *Kelvyn L. Dunn*

Introduction

The Common Grass Blue (*Zizina otis* F.) is usually plentiful wherever it occurs (Dunn et al. 1994) and for that reason is not hard to find – all collectors would have a pair or two for display purposes (but perhaps that is all). Historically, Waterhouse (1937: 113) wrote of *Z. otis* (then recognised as *Z. labradus*, as was the case this last decade until very recently – see Yago et al., 2008) that it is "*the commonest butterfly in Australia, being found almost everywhere...*" He reiterated that opinion a few pages later in the presidential address (p. 118), to reinforce his assertion, and remarked too, that its distribution included Tasmania. The habitat requirements of many species of butterfly can be complex and, for that reason, it is often difficult to label a species' commonality by any single means, as conservationists are well aware. Yet, Waterhouse's expert assessment – supported by the butterfly's routine presence at numerous sites over a wide distribution nationwide – has justified itself across the decades (Dunn & Kitching 1994).



Over the last 150 years or so of collector activity, encounter with this butterfly in the field has usually stirred little interest, as relatively short museum series available today would testify. It is also probably fair to say that many contemporary insect enthusiasts, and importantly, those who visit remote areas of Australia to pursue their interests, still likely pay little attention as to whether it is present or not at those sites visited. As a result, many casual sightings of this species were rarely listed in the literature or accumulated until grid- and point-mapping of butterfly species gained popularity towards the end of the 20th century (see ESV 1986, Dunn & Dunn 1991, McQuillan 1994, Dunn 2012a,b), at which time a purpose for data collation became apparent.

Decades of sampling partiality have had an accumulative effect on our knowledge of the Common Grass Blue, particularly in outback areas. The range-fill map presented for this lycaenid (see Braby 2000) shows a void in northwestern Queensland, as well as for other remote regions in northern Australia that are infrequently visited by entomological workers. (Indeed, it is the case for the Gulf Country, where the butterfly is actually widespread! – see evidence in this paper). An absence of knowledge might also apply to much of the central and desert areas of Western Australia (where the butterfly could be widespread or at least patchy), and for much of coastal Tasmania (where it is currently unrecorded, or where earlier literature that documented its presence has been overlooked). To help resolve that data paucity, I searched for this butterfly in northwestern Queensland to determine its distribution in areas where it was not previously recorded.

Methods

The survey methods I applied to gain the new distribution data require explanation; that way the species' identifications have an undercarriage of surety that will bolster their acceptance for the scientific record. Whenever required, capture of one or more adults (60% of the sample compiled in Table 1) was the means to confirm identifications with certainty. Yet close observations in the field (achieved at times when adults landed to feed at flowers or soaks (Figure 1), when they perched on herbage and grasses to monitor their habitat and flight space, or when they occasionally shaded themselves on low foliage or on ground litter beneath shrubs during hot weather) were usually equally suited for this purpose. Under my personal conservation guideline of 'least interference', I successfully identified a reasonable number of the 50 records listed (from 45 new or overlooked locations) without the requirement of handling. Those encounters recorded by 'observation-only' (40%) are marked (**Obs.**), to distinguish them from those that were captured and then released (**Rel.**) (26%) and those of the remainder that were retained as vouchers (**KLD**) (34%). Identifications were certain (Category 1) for most (75%) of the 20 'observation-only' field encounters – in each case, sufficient underwing characters were visible to achieve that level of confidence. The remaining five of the 20 'observation-only' encounters were to a level of almost certain (Category 2) as field circumstances



sometimes did not permit sufficient time or closeness to identify the species to a level ‘beyond reasonable doubt’, particularly where other similar looking species may be present (as is the case in the Gulf Country). These lower grade records are marked ‘C2’ (see Dunn 2011 for discussion of categories of record acceptability used in the database project) and were placed as this species ‘on the balance of probabilities’ based on some characteristics and other circumstances of each particular sighting that strongly suggested that diagnosis (rather than another species) at the time of the event. Field photography – which can achieve identifications with certainty – may not have assisted with those five encounters due to reflective light from their silvery wing surfaces when perched in direct sun (exposure issues) and because of the brevity of those very sightings in areas where adults were scarce and thus difficult to find within the time available.

The means used to measure distances and define locations to a precision of within a kilometre of the actual site (usually measured from the Post Office of the nearest township) were outlined in a previous report in this series (Dunn 2013a); these apply similarly to this paper. A hand-held trekking device provided the coordinates of latitude and longitude for sites in Queensland. I later checked the odometer-measured road distances to each site (as calculated from the nearest road marker, where available) on Google Earth (www.google.com/earth/index.html) to confirm agreement – there was minor discrepancy for some though where large road distances were involved. The traditional means (namely, the fine examination of published road maps) provided coordinates for the older sites in Tasmania. Extended discussion of these processes, with recommendations for designating the provenance unambiguously, is available elsewhere (see Dunn 2013b) and may serve as a useful guide for would-be data contributors.

Results and Discussion

Table 1 (presented in two sections: a-b) summarises 45 noteworthy locations; these are arranged from north to south, and each location includes a geocode resolved to one minute (although those specimens retained may be labelled more precisely). Several of my older records overlooked by Braby (2000) are reiterated (to draw attention to them), and cross-referenced.

The survey findings (Table 1) would impress that *Z. otis* extends widely throughout the Gulf Country. As a sample of random field encounters, the table gives evidence of a broader distribution in northern Australia than was known. Thus, the new findings (most but not all of my encounters in this region are included, and on occasion some sites were visited more than once and not all dates may be included) add usefully to the historic literature base and those museum records that Braby (2000) used to construct his range-fill map for this particular butterfly. In addition, this species’ distribution in eastern coastal Tasmania is likely to prove more extensive than Braby (2000) had indicated and more extensive than this reiterated data set would currently provide for. Focussed survey along the western coast of Tasmania, where the butterfly



was harder to find and seemed rather localised where it was found, will almost certainly provide new information supportive of a similar expectation.

As part of that ongoing data-gathering process, I recommend that the retention of some vouchers (intended for an institution in time) is a durable standard, one that authors should aim for to evidence-base *any revision* of established spatial or temporal knowledge in the scientific literature (see also Dunn 2013b). Balancing that directive, digital photography in the field can provide enough information for trustworthy identifications of various small butterflies on many occasions (albeit this may take more time to achieve adequately than does the capture of specimens) and remain usable to others if archived in databases. Finally, field-based identifications by skilled observers usefully augment the literature base, as can those of the novice reporter, where such a writer eliminates similar co-existent species (based on documentation of characteristics seen) or where such a writer indicates an awareness of those similar species with which a species under study may coexist. That way the data gathered by observers of varying competence, and using an array of methods (rather than entirely by observation), should be trustworthy. That is to say, save those inadvertent errors that do accumulate (and which take time detect, and gather evidence of, for their ultimate removal) and thus will unlikely distort the scientific record that has been so carefully compiled from museum holdings for the most part.

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Key to Table 1a-b

- *1 – reiterated location (see Dunn 1995: 28); although Braby (2000) cited this location in the body text, it appears to be outside the range provided on the accompanying range-fill map for subspecies *labradus* on the Cape York Peninsula.
- *2 – fed at mud-soak, between 13:30-13:40h AEST.
- *3 – adults prolific; fed at flowers of *Cullen* sp. (Verbenaceae), between 14:10-14:30h AEST.
- *4 – fed at flowers of roadside herbs, probably a *Verbena* sp. (Verbenaceae), 16:25-16:30h AEST.
- *5 – many fed at *Carissa lanceolata* (Apocynaceae), *Cullen* sp. and *Terminalia* sp. (Combretaceae) from 09:00-09:30h AEST (on joint visit with T. Woodger; these nectar hosts identified by T. Woodger); this location is at or near boundary depicted by Braby (2000).
- *6 – this location is at or near boundary depicted by Braby (2000)
- *7 – this location is at or near boundary depicted by Braby (2000)
- *8 – fed at flowers of *Cullen* sp. (Verbenaceae) between 1020-1055h AEST.
- *9 – several seen roosted together (along with a female of *Lampides boeticus* and a small male of *Junonia villida*) on foliage near base of shrub, in shade (15:25-15:40h AEST), in riparian open woodland during very hot weather (c. 39°C); this location is at or near boundary depicted by Braby (2000).
- *10 – reiterated location (see Dunn 1998: 38).
- *11 – reiterated location (see Dunn 1999: 4).



Table 1a. Forty-five (45) new locations for *Z. otis* beyond or near the boundary of its known range in Queensland and Tasmania

| Location | State | Geocode | Date | Format |
|--|-------|-------------------|---|---------------------------|
| Coen, in township | Qld | 13°57'S, 143°12'E | 27 Oct 1991 03 Nov 1991 06 Jan 2002 | KLD *note 1 KLD Obs |
| Brannigan Creek, 31km E of Karumba | Qld | 17°27'S, 141°07'E | 13 Oct 2012 | Obs (C2) *note 2 |
| Karumba Point boat ramp | Qld | 17°28'S, 140°50'E | 13 Oct 2012 | Obs |
| Normanton, near Travers Street, along drain | Qld | 17°41'S, 141°04'E | 12 Oct 2012 14 Oct 2012 | Obs Obs |
| 21km SSW of Normanton | Qld | 17°50'S, 141°00'E | 12 Oct 2012 | KLD |
| Flinders River, 60km SSW of Normanton | Qld | 18°10'S, 140°51'E | 12 Oct 2012 14 Oct 2012 | Rel KLD |
| Barkly Creek, 49km N of Gregory Downs | Qld | 18°14'S, 139°16'E | 10 Oct 2012 | KLD |
| Gregory River, Gregory Downs | Qld | 18°39'S, 139°15'E | 10 Oct 2012 23 Oct 2012 | Obs (C2) Obs (C2) |
| 59km NNE of Burke & Wills Roadhouse (RH) | Qld | 18°44'S, 140°30'E | 14 Oct 2012 | Obs (C2) |
| Leichhardt River, 83km NW of Burke & Wills RH | Qld | 18°49'S, 139°47'E | 10 Oct 2012 | Obs |
| 49km NW by W of Burke & Wills RH | Qld | 18°59'S, 139°59'E | 10 Oct 2012 | Rel |
| Single Creek, 45km NW by W of Burke & Wills RH | Qld | 19°01'S, 140°00'E | 11 Oct 2012 | Rel |
| Burke & Wills RH | Qld | 19°14'S, 140°21'E | 01 Nov 2011 | KLD |
| Hazel Creek, at 3.6km SSW of Burke & Wills RH | Qld | 19°15'S, 140°20'E | 26 Oct 2012 | Obs |
| Dismal Creek channels, 4km ESE of Burke & Wills RH | Qld | 19°15'S, 140°22'E | 01 Nov 2011 | Rel |
| 19km SW of Burke & Wills RH | Qld | 19°22'S, 140°14'E | 01 Nov 2011 | KLD |
| Dugald River, 71km ESE of Burke & Wills RH | Qld | 19°32'S, 140°51'E | 31 Oct 2011 | Obs (C2) |
| 130km SE of Burke & Wills RH | Qld | 19°59'S, 141°06'E | 26 Oct 2012 | Rel *note 3 |
| 105km NW of Julia Creek | Qld | 20°00'S, 141°06'E | 31 Oct 2011 | KLD *note 4 |
| Cloncurry River, 101km NW of Julia Creek | Qld | 20°02'S, 141°07'E | 09 Oct 2012 | Obs |
| 84km NNW of Cloncurry | Qld | 20°03'S, 140°13'E | 16 Oct 2012 | Rel |
| Gilliat River, 94km NW of Julia Creek | Qld | 20°05'S, 141°08'E | 09 Oct 2012 | Obs |
| Eastern Creek, 91km NW of Julia Creek | Qld | 20°06'S, 141°09'E | 09 Oct 2012 | Obs |



Table 1b. Forty-five (45) new locations for *Z. otis* beyond or near the boundary of its known range in Queensland and Tasmania (*continued*)

| Location | State | Geocode | Date | Format |
|--|-------|-------------------|-------------|-----------------|
| Express Creek, 86km NNW of Richmond | Qld | 20°06'S, 142°49'E | 29 Oct 2011 | KLD *Note 5 |
| 3km S of Granada, on Sedan Dip road | Qld | 20°07'S, 140°22'E | 22 Oct 2012 | Rel |
| 86km NW of Julia Creek (township) | Qld | 20°07'S, 141°11'E | 31 Oct 2011 | Obs |
| 17km N by W of Quamby Hotel, on Sedan Dip road | Qld | 20°14'S, 140°15'E | 22 Oct 2012 | Obs |
| Quamby Hotel, 46km NW by N of Cloncurry | Qld | 20°22'S, 140°17'E | 16 Oct 2012 | Rel |
| 40km NW by N of Cloncurry | Qld | 20°25'S, 140°18'E | 16 Oct 2012 | Rel |
| Lake Moondarra at Transport Bay (north of Mt Isa) | Qld | 20°35'S, 139°35'E | 02 Nov 2011 | KLD *Note 6 |
| 22km W of Julia Creek (township) | Qld | 20°39'S, 141°32'E | 08 Oct 2012 | KLD |
| Julia Creek crossing, at 1.4km E of Julia Creek (township) | Qld | 20°39'S, 141°45'E | 31 Oct 2011 | KLD *Note 7 |
| McKinlay highway junction, at 25km W of Julia Creek (township) | Qld | 20°40'S, 141°31'E | 08 Oct 2012 | Obs |
| Corella Creek, at 47km E of Julia Creek (township) | Qld | 20°40'S, 142°11'E | 26 Oct 2012 | Rel *Note 8 |
| Cloncurry River anabranch, at 1km W of Cloncurry | Qld | 20°42'S, 144°30'E | 22 Oct 2012 | Rel |
| Mary Kathleen Mine | Qld | 20°44'S, 140°00'E | 17 Oct 2012 | KLD |
| Corella River, at 45km W by S of Cloncurry | Qld | 20°47'S, 140°07'E | 17 Oct 2012 | Rel |
| Elder Creek, 73km NW of McKinlay | Qld | 20°49'S, 140°48'E | 08 Oct 2012 | Rel |
| 64km NW of McKinlay | Qld | 20°53'S, 140°51'E | 08 Oct 2012 | KLD |
| McAlister River, 49km NNE of McKinlay | Qld | 20°53'S, 141°29'E | 08 Oct 2012 | KLD |
| Gilliat River channel, at 38km NNE of McKinlay | Qld | 20°59'S, 141°28'E | 08 Oct 2012 | KLD *Note 9 |
| Lake Burbury, at picnic/camping ground | Tas | 42°06'S, 145°41'E | 18 Jan 1996 | KLD *Note 10 |
| Unsigned creek crossing, at 8km W of Bicheno (nr D. Aspley NP) | Tas | 41°52'S, 148°12'E | 11 Mar 1996 | Obs |
| c. 800m SW of Barbers Ck, about 8km SW of Bicheno | Tas | 41°56'S, 148°14'E | 11 Mar 1996 | Obs *Note 11 |
| Swanwick, 4km NW of Coles Bay | Tas | 42°06'S, 148°15'E | 11 Mar 1996 | Obs |





Figure 1. – Eleven adults of *Z. otis* feeding communally at a septic overflow, at a roadside rest area, at 47km ESE of Winton, in outback central Qld. (22°33'S, 143°25'E); this site is within the range-fill boundary given for the species.
Photo Kelvyn Dunn

Further commentary on this feeding event, as an aside:

The interesting behaviour illustrated in this photo, although outside the thrust of this paper, is worthy of a short explanatory note. It is not a commonly seen event in coastal areas of Australia, but seems a more regular feature in the inland, particularly in tropical areas, where butterflies of several species may communally seek both moisture and soluble nutrients.

This particular feeding event took place during hot weather (circa 30°C) on 5 Oct. 2012, from 13:00 to 13:30h AEST. The adults (probably all males) fed near four other species of butterfly, namely, *Papilio demoleus* (up to seven feeding at a time), *Eurema smilax* (two feeding individually, at different times), *Belenois java* (one male) and *Junonia villida* (one). Adults of *Z. otis* (like those of *P. demoleus*) generally prefer to keep company with their own species (as shown) rather than to feed in mixed groups as might be expected if they landed at random. Of interest too, was the observation that no adults of any species fed at the pure water overflow (which was without an algal bloom), albeit located only a few metres away (and derived from



regular spillage from a rainwater tank at the facilities), during the timeframe of the visit. (A tourist at the site commented that he had seen the swallowtail butterflies (pointing to *P. demoleus*, then flying about the soak) feeding regularly since his arrival at 1000h, but he did not remark on the smaller butterflies also present at times).

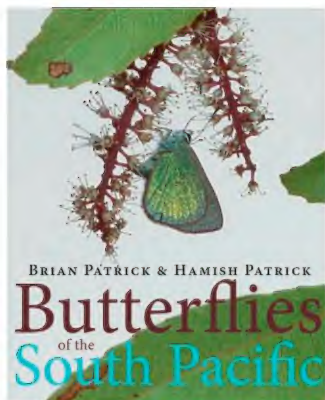
BOOK REVIEW

Butterflies of the South Pacific – reviewed by

Alan Hyman

Brian and Hamish Patrick/Otago University Press
(NZ)

Hardback, 240pp ISBN 978 1 877578 04 5



This 2012 publication covers 120 species (plus 24 subspecies) of butterfly recorded in the islands and archipelagos of 14 countries and territories scattered across millions of square kilometres of the South Pacific Ocean. Included are American Samoa, Cook Islands, Fiji, French Polynesia, Kiribati, New Zealand, Niue, Pitcairn Group, Samoa, Tokelau, Tonga, Tuvalu, Wallis and Futuna plus the Hawaiian

Islands as a logical geographical extension. It does so within a simple yet elegant hardback volume, a little larger than A4 in size. It begins with a foreword by John Tennant (Natural History Museum, London) followed by a preface incorporating a brief geographical and historical regional background, the authors' philosophy, numerous expeditions and acknowledgments. After three pages of maps, there is an introductory chapter on butterflies, tables of the island groups with their political status, areas, taxa, endemic species and other statistics. The following five chapters are devoted to the major families, each species being covered by easy to follow descriptive text and same size (twice life size for Lycaenidae) colour photographs of set specimens. The book concludes with a section on conservation and education, appendices, glossary, bibliography and index. There is superb habitat landscape and live specimen photography throughout plus ancillary asides such as examples of thematic philately (butterflies on the region's stamps).

There is much fascinating information encompassed within these pages. For example, the Pitcairn Island butterfly fauna consists of just a single species, the Blue Moon (*Hypolymnas bolina*) which has various subspecies distributed throughout the region. Kiribati fares little better with just three, while (a surprise to me) New Zealand's total is now 55, largely due to 'new' species discerned in the distinctive Satyrinae genus *Pernodaimon* and the *Lycaena* 'Common Copper' complex. Interestingly, there are two endemic species of Red Admiral in NZ – *Vanessa gonerilla* from the three main islands and *V. ida* from Chatham Island. Since 2010, the European Large White



(*Pieris brassicae*) has been resident around Nelson in New Zealand's South Island. One wonders how long it might be before *P. brassicae* is added to Australia's butterfly total, given that NZ was the indirect source of our Cabbage White (*Pieris rapae*) in 1937? Just three species of Swallowtail (Papilionidae) are included – the magnificent black and yellow Japanese Swallowtail (*Papilio xuthus*) now found in Hawaii; the Somoan Swallowtail (*P. godeffroyi*) and the somewhat similar Fijian Swallowtail (*P. schmeltzi*). Among Fiji's 47 species there are also two exquisite little brown and white ringlets (*Xoïs* spp.) and the imposing brown and cream Fijian Emperor (*Polynura caphontis*).

Because of its high quality and relatively compact dimensions, this book could perhaps be described as a 'coffee table field guide'. This is not to diminish its significance however. Father and son co-authors, Brian and Hamish Patrick, are obviously passionate about butterflies and well qualified in their field. The book is accessible and a pleasure to read, equally attractive to the amateur or professional lepidopterist and would be of value to anyone with an interest in the region's natural history. It should also make a useful companion for Kelvyn Dunn's recent excellent articles in *Metamorphosis Australia*.

The book first came to my attention as a short review in 'Butterfly', the magazine of the British charity, Butterfly Conservation. It was not available in bookshops but I was able to purchase it for about \$AU67 including postage through 'Booktopia'. (Contact www.booktopia.com.au for details)

REPORT

A Visit to the Butterfly House – Jean Gundry

In November 2013, Ray and Delphine Archer invited the members of the BOIC to a special open day at their Butterfly House on Bribie Island. The occasion was unforgettable, as visitors were greeted by tantalising flashes of neon blue from the wings of one hundred *Ulysses* butterflies which had hatched in recent days. We took children with us to share in the occasion, and they were greeted by the sight of other children with butterflies resting on heads, arms and shoulders and backs. They were enchanted by the beautiful butterflies, the variety of flowering plants, the tiny quail scuttling about at their feet and then by the realisation that it all began as tiny eggs and hungry caterpillars. Our visit prompted the children to ask many questions. Each child was given plants to take home to plant in their garden. Several of the older children who live on Bribie Island have made repeat visits to help with the butterflies and to learn more.

Ray and Delphine's Butterfly House is not a tourist attraction, but rather is a project, a passion, which relies on a band of willing volunteers to help raise butterflies and to produce the plants which sustain both the caterpillars and the adult butterflies. Ray



and Delphine would love to see Bribie Island become known as “Butterfly Island” and have given away thousands of plants to community members and to organisations. Here are some of the questions which were asked during the visit, as well as some of the children’s responses to the visit.

Noel - What species of butterflies are you breeding? What host plants do the caterpillars need?

Ray - We raise the green and white caterpillars of the beautiful blue Ulysses Swallowtail butterfly on Evodia or Pink Doughwood (*Melicope elleryana*). The big fat caterpillars of the large colourful Cairns Birdwing butterfly feed on the Tagala Vine (*Aristolochia acuminata*). The Tagala Vine is the best food but if we run out of it we use the younger leaves of the Birdwing Butterfly Vine (*Pararistolochia praevenosa*). The caterpillars are spiny but the skin and spines are as soft as satin.

The Lurcher butterfly lives in Northern Australia, so in captivity we use the Purple Waffle Plant. This small plant needs plenty of water and can even thrive under water in fresh water aquariums. Its botanic name is *Hemigraphis alternata*. It is called Purple Waffle Plant because of its colour and the leaf is bubbly like a waffle. In the wild, Lurcher caterpillars feed on plants from the same Acanthaceae family. At our place, the Common Eggfly butterfly likes to lay on Joyweed (*Alternanthera denticulata*). As soon as the baby caterpillars hatch from the bluey-white eggs, we place the Joyweed up against young Sweet Potato vine (*Ipomea batatas*). The butterflies never lay eggs on this vine, but the caterpillars love it, thrive on it and turn into large, healthy chrysalises (pupae). The Common Eggfly is also called the Varied Eggfly because there can be up to six different colour patterns on the wings of the female butterflies. Some people call the male the Blue Moon butterfly because of the white “Moon” on each wing that is surrounded by a pretty metallic blue band. The male will often land on you in the butterfly house.

The orange and black Monarch or Wanderer butterfly is famous around the world because it sometimes migrates up to a few thousand kilometres and can live for up to eight months. Its caterpillar feeds on the Redhead Cotton Bush and Yellow Milkweed (both *Asclepias curassavica*) and the Common Milkweed (*Gomphocarpus fruticosus*) which is also known as Balloon Cotton Bush with its ping-pong ball sized green seed pod. New Zealanders know it as the Swan Plant because the swan’s body, the round seed pod, has a stem like the neck of a swan. They say it floats on water like a swan, also.

Next comes the Lemon Migrant which lays on young *Cassia brewsterii* and *Senna elata* plants in the butterfly house. The long green “boofhead” caterpillars are easy to raise and the butterflies glide around quite happily.

We sometimes have the Common Crow butterfly with its pure gold or pure silver chrysalises. The caterpillars feed on a number of milky sapped vines as well as fresh



young leaves of the well-known Oleander shrub. One common vine on Bribie Island that the caterpillars like is the Monkey Rope Vine (*Parsonia straminea*).

We raise several other butterflies from time to time such as the Blue Tiger, Black and White Tiger, Large Grass Yellow, Caper White, Glasswing, Clearwing Swallowtail and White Migrants.

Matthew - What do butterflies do apart from flying about?

Ray - Butterflies are egg-laying machines. After a male and female butterfly mate, the female drinks nectar from flowers for the energy she needs to fly and look for the right kind of plants to lay her eggs on.

Kristina - What nectar plants can we grow in our garden for the butterflies?

Ray - Here are some of the best nectar plants to grow around Bribie Island and South-East Queensland. Most of these are small (200mm -1500mm high), so won't take up too much space. They can be planted in sunny spots around the yard and will do much better if given a regular drink of water:

Lilac Lady Pentas and other pentas (*Pentas lanceolata*)

Snake Plant (*Stachytarpheta* species)

Anise Hyssop (*Agastache foeniculatum*)

Butterfly Needles (*Bidens alba*)

Cherry Pie Heliotrope (*Heliotropum arborescens*)

Joe Pye Weed (*Eupatorium purpurea*)

Globe Amaranth (*Gomphrena globosa*)

Butterfly Bush (*Buddleia davidii*)

Alice - Why do you like butterflies so much?

Ray - It's a very rewarding hobby. After the eggs are laid, you can see tiny caterpillars hatch out. They eat their little egg shells to get their first protein meal before feeding on the leaves we supply them. Caterpillars are eating machines. If a human baby was born and grew at the same rate as a caterpillar grows, it would be as big as a double-decker bus in two or three weeks! They shed a few skins as they grow and often finish up an entirely different colour after each moult. Then they go quiet and within a couple of days shed their last skin to reveal a pretty chrysalis. In one to six weeks, out comes an entirely new creature, a beautiful butterfly that doesn't eat leaves but drinks nectar. It no longer has a mouth that chews, but instead has a hollow straw (proboscis) to drink nectar from flowers. Its long dainty legs are completely unlike the short fat legs of a caterpillar. As well, it has now grown beautiful wings and can fly instead of crawl. This whole process, called metamorphosis, is awesome. I love everything about these amazing, peaceful creatures.

Noel - How can I learn more about butterflies?

Delphine - We are always looking for volunteers to help with this community project. We envisage that with community support, one day Bribie will be known as "Butterfly Island". With the help of volunteers we have already given away thousands of plants,



so we are well on the way to making the dream a reality. Angela Blinco and her children are typical of the volunteers who love helping Ray to clean the caterpillar enclosures, feed the caterpillars new plants, collect chrysalises, release butterflies and plant seedlings, water the plants etc. Angela says her children have gained a great insight into the life cycles of the butterflies as well as learning about the environment. People who are interested in volunteering are always welcome so if you think you would enjoy helping to care for the caterpillars and butterflies or would enjoy helping to care for and distribute the plants, and you can spare a few hours each week, please contact Ray on 0409491419. You will learn as you go and may even decide to raise some of your own butterflies at home.

We asked some of the children who have visited the Butterfly House to record their impressions of their visit.

Why do you enjoy going to Ray's "Butterfly Farm"? (As told to Angela by her children).

"I always feel excited and I wish I could go there every day. I like putting the plants in pots."

(Kira, aged 4)

"I like helping Ray put the pots of little trees in the trays. I love looking at the quails and butterflies."

(Riley, aged 6)

When we went to Bribie... (As told to Grandma by Kristina, aged 6).

"First we saw some caterpillars and next we saw some quail which was interesting. We saw some butterflies."

Tell me about the butterflies "One type was blue. My favourite type was the green and yellow ones and there were 42 butterflies. I counted the pictures I took. We took some plants home because the person gave them to us and they were free. The butterflies suck the nectar from the flowers. We could hold the butterflies at the front where the heads were."

What did we do at Bribie last weekend?... (As told to Grandma by Alice, aged 3).

"We saw the beautiful butterflies and we saw some caterpillars. I was taking pictures. Only the boys held the butterflies. Got some plants to take home."

Our impressions of the Butterfly House

(As written by twins, Matthew and Noel Hudson-Bradby, aged 10)

"We met Ray where he grows his hydroponic sweet potatoes for the leaves to feed the Eggyfly butterfly caterpillars. We looked at a variety of other plants that he sometimes gives away to Bribie Island residents. Then we moved to the Butterfly House where we saw many different types of butterflies including Ulysses, Meadow Argus and Eggyfly. If we gently put two fingers in front of a butterfly sometimes they would walk onto our hand. There were stick insects on a shrub next to the path and there were baby quails with their parents walking around the butterfly house."



Then we learnt more about the butterfly's life cycle when we went to look at all the caterpillars and chrysalises. The caterpillars were in net cylinders. The Ulysses caterpillars were light green and the Cairns Birdwing caterpillars were dark black with spikes on their backs. The tips of the spikes were very bright orange. Some of the chrysalises looked like polished gold but even Ray didn't know if it was gold. We were lucky enough to release some of the butterflies that had just emerged from their chrysalises into the butterfly house.

After one last look in the Butterfly House, Ray gave us some plants to help attract butterflies to our garden at home. The plants we chose had flowers on them and one of them smelt like licorice if you took a little piece off the end of the leaf and scrunched it up between your fingers. We would like to come back to the Butterfly House again."

A gallery of photographs taken at Ray and Delphine's butterfly house

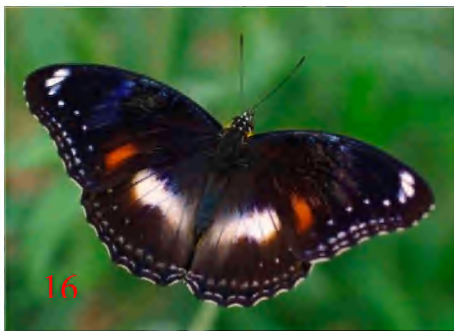
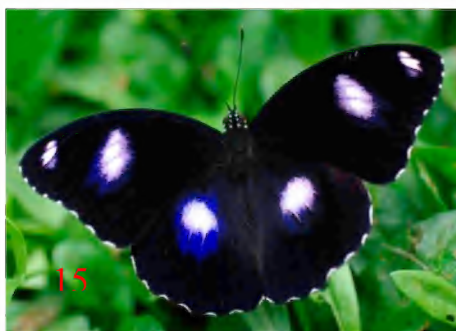
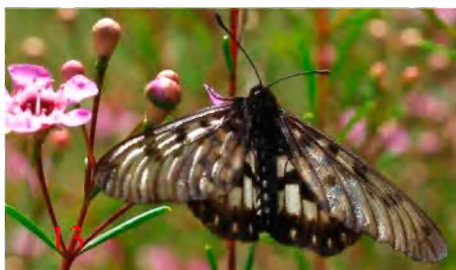
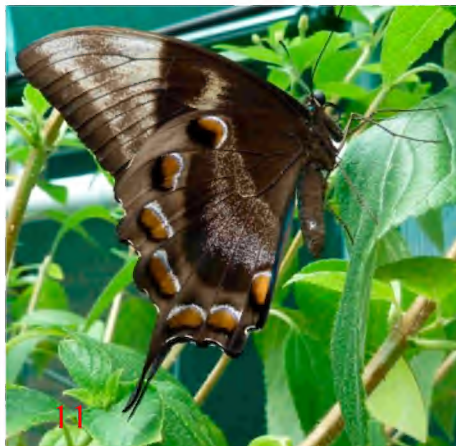


1 - Ulysses 2 - Ulysses ovipositing 3 - Eggs 4 - Various pupae

Photos Angela Blinco







5. Newly emerged Lemon Migrant – Photo Angela Blinco 6. Children in Butterfly House 7. Caper White pupa 8. Caper White 9. Meadow Argus 10. Monarch 11. Ulysses 12. Cairns Birdwing 14. Chequered Swallowtail 15. Male Common Eggfly 16. Female Common Eggfly - Photos 6-16 Jean Gundry



LETTERS

Hi Daphne,

In the "Letters" pages of *Metamorphosis Australia*, December 2013 (pages 35 to 36), I gave a brief account of a recent walk out to Mt Merino (Lamington National Park). I'd like to add some important details which weren't included in the email letter.

The weevil was found by the young botanist with a very keen eye, Lui Weber. And it was actually Lui who first drew our attention to the Bluebell (*Wahlenbergia* species) having spotted it from the Mt Merino lookout a year or two ago. Mike Olsen was the man with a mission to look more intensively around the summit of Mt Merino for these rare species, and as it turned out, successfully. The *Wahlenbergia*, *Gaultheria* and *Euphrasia* plants (and other species) were all located by the intrepid Phil Box and I was just thankful to be there with them!

And the *Wahlenbergia* is indeed a new species!

Regards, Glenn Leiper

YOU ASKED

Q Hello Daphne,

Had this lovely moth on our patio this am (20th Jan. 2014) but can't find it in my book tho some of the *Donuca* look similar.

Could you get it ID'd please.. Cheers Jan Penny, Beerwah



A Hi Jan, Your moth is *Donuca rubropicta* a member of the Noctuidae family in the subfamily Catocalinae. The genus is endemic to Australia with 6 members, the others being, *D. castalia*, *D. lanipes*, *D. orbigera*, *D. spectabilis* and *D. xanthopyga*. *D. rubropicta* is restricted to

eastern Queensland and north-eastern New South Wales. It seems fairly common and often comes to my light sheet along with *D. orbigera* and *D. castalia*, the latter being the most common which often appears in numbers. There appears to be no record of host plants for any of the species.

<http://www.lepbarcoding.org/australia/species.php?region=1&id=69929>

Main reference :

Common I.F.B. 1990 Moths of Australia, Melbourne University Press.

Peter Hendry



OTHER GROUPS' ACTIVITIES

Sat 5th April - Sat 12 April - 10am - 3pm daily - *Butterfly scientific illustration exhibition by Andrew Atkins*;

Fri 11th April - 10.00am – 12.00pm - *Butterfly scientific illustration workshop*;
Learn how to create scratch art illustrations of insects and butterflies as shown in the exhibition artworks. **Workshop fee \$20.00 per person includes the registration fee.**

Sat 12th April - 8.30 - 10.00am - *Identifying butterfly host plants* with Andrew Atkins and John Moss; **Registration fee \$5.00 per person.**

Bookings are essential for these workshops. Online bookings can be made through Sunshine Council's Community Hub site by logging on to www.community.sunshinecoast.qld.gov.au/events and entering the date of the workshop into the calendar.

Redlands Good Gardening Expo Sunday 13th April 9am to 3pm. Find out about growing your own organic food at home; tastier, healthier food, the way it was meant to be eaten. Learn about native gardening and how you can use natives to create habitats. Enjoy some arts and craft, music and food!

Indigi Day Out Saturday 7th June 10am to 9pm. Discover the wonders of IndigiScapes at this fun-filled event! During the day there will be wildlife displays, mini workshops, music, arts and craft, kids activities, and food to enjoy. Once the sun goes down and the creatures of the dark come out the event will transform into a bushdance and twilight markets.

BUTTERFLY AND OTHER INVERTEBRATES CLUB PROGRAMME

AGM – 12th April, 2014, at Redlands Indigiscapes Centre, Capalaba –
See enclosed flyer

BOIC Trivia Night – 10th May, 2014 at Redlands Indigiscapes Centre, Capalaba
See enclosed flyer

Planning and General Meeting

What: A talk on light trapping of moths by Peter Hendry and a look at his extensive moth collection will follow our quarterly planning meeting.

When: Saturday May 17th 2014 from 10am.

Where: Peter's place at Henderson – address provided on RSVP.

Who: All members are welcome.

RSVP: Ross Kendall on 07 3378 1187, 0402 254 370,
ross@butterflyencounters.com.au

Indigi Day Out Saturday 7th June, 2014 - 10am to 9pm.

See details in Other Groups' Activities – We will have a display at this event.



DISCLAIMER

The magazine seeks to be as scientifically accurate as possible but the views, opinions and observations expressed are those of the authors. The magazine is a platform for people, both amateur and professional, to express their views and observations about invertebrates. These are not necessarily those of the BOIC. The manuscripts are submitted for comment to entomologists or people working in the area of the topic being discussed. If inaccuracies have inadvertently occurred and are brought to our attention we will seek to correct them in future editions. The Editor reserves the right to refuse to print any matter which is unsuitable, inappropriate or objectionable and to make nomenclature changes as appropriate.

ACKNOWLEDGMENTS

Producing this magazine is done with the efforts of:

- Those members who have sent in letters and articles
- Lois Hughes who provided the cover painting
- Daphne Bowden who works on layout, production and distribution
- John Moss, Robert Whyte and Dr Max Moulds for scientific referencing and proof reading of various articles in this issue of the magazine
- Printing of this publication is proudly supported by Brisbane City Council



We would like to thank all these people for their contribution.

Dedicated to a better Brisbane

ARE YOU A MEMBER?

Please check your mailing label for the date your membership is due for renewal. If your membership is due, please renew as soon as possible. **Membership fees are \$30.00 for individuals, schools and organizations.** If you wish to pay electronically, the following information will assist you: BSB: **484-799**, Account No: **001227191**, Account name: **BOIC**, Bank: **Suncorp**, Reference: your membership number and surname e.g. **234 Roberts**.

Butterfly and Other Invertebrates Club Inc.
PO Box 2113
RUNCORN Q. 4113

Next event – Annual General Meeting – 12th April, 2014 – see enclosed flyer

